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Identifying barriers and levers of biodiversity mainstreaming in four cases of transnational governance of land and water

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ABSTRACT

Mainstreaming biodiversity into the governance of economic sectors such as agriculture, forestry and fisheries is required to reverse biodiversity loss and achieve globally adopted conservation targets. Governments have recognized this but little progress has been made. This paper addresses the following research question: What are the barriers and levers for mainstreaming biodiversity into economic sectors that exert high pressure on biodiversity? This question is approached through applying an analytical framework developed from literature on mainstreaming and Environmental Policy Integration as well as governance theory and practice to four cases in agriculture, agro-forestry and fisheries covering multi-level and transnational governance contexts. Decision-making and governance in these cases look quite different compared to the kind of public policy machinery of governmental bureaucracies that much EPI literature has focused on. Our analysis demonstrates mainstreaming efforts in some of our cases at the degree of harmonization and even coordination among key actors. It further identifies a number of 'additional' barriers and levers that from an Environmental Policy Integration perspective would be considered as external factors out of reach for mainstreaming efforts. The results are pertinent for the evaluation of EPI performance because the governance perspective expands the borders of who can initiate, enable and sustain mainstreaming, what scope of regulatory norms they can use and the potentially useful resources for the process.

1. Introduction

The major pressures on biodiversity loss are found in economic sectors such as agriculture, forestry and fisheries (Kok et al., 2014). This means that addressing direct pressures and underlying causes in these economic sectors is a key approach to reverse biodiversity loss as conservation measures in e.g. protected areas will never be enough. Environmental policy integration (EPI) is a concept and approach that has as underlying rationale exactly this – to address the drivers rather than symptoms of environmental degradation by mainstreaming/integrating environmental issues in policy areas where the drivers are

located (Lafferty and Hovden, 2003; Persson, 2004; Runhaar et al., 2014). Fittingly thus, the need for mainstreaming biodiversity into the governance of economic sectors has been recognized in the most important international instrument to address biodiversity, the Convention of Biological Diversity (CBD), as one of its strategic goals adopted in 2010 by its 196 Parties. In more specific terms countries agreed to strive to “[a]ddress the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society” (CBD, 2010). In the context of the CBD and domestic biodiversity policy this process of integration is commonly referred to as mainstreaming, reflecting the point of departure and intention of biodiversity policy

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makers to put this issue on the agenda in economic sectors where it is given scant if any attention. As this global policy context is our focus we will use the concept of mainstreaming, rather than integration, in this paper, recognizing the almost interchangeable character of the two concepts (see below). The broadly accepted definition of mainstreaming in the CBD/biodiversity context is ‘the process of embedding biodiversity considerations into policies, strategies and practices of key public and private actors that impact or rely on biodiversity, so that biodiversity is conserved and sustainably used both locally and globally’ (Huntley and Redford, 2014). However, in the follow-up of countries’ efforts to implement this approach it has become clear that progress is slow or non-existent and that the mainstreaming of biodiversity into economic sectors is a considerable challenge (Huntley and Redford, 2014; Leadley et al., 2014). There can be multiple reasons for this low implementation such as the lack of relevant knowledge and sufficient interest to take action in those sectors (Karlsson-Vinkhuyzen et al., 2017). This paper seeks to further unpack possible reasons by addressing the following research question: What are barriers and levers for mainstreaming biodiversity into economic sectors that exert high pressure on biodiversity?

We have elsewhere developed an analytical framework for answering this question, see Karlsson-Vinkhuyzen et al. (2017), by drawing on literature on EPI (and related literature on mainstreaming) and governance theory and practice. The inclusion of governance literature reflects our underlying assumption that a mainstreaming approach confined to public policy actors and/or hierarchical steering – which is often the focus of EPI literature – is not sufficient in the context of relevant economic sectors that influence the underlying causes of biodiversity loss, such as agriculture, fisheries, forestry, mining and tourism. These sectors are governed both by a broader set of actors beyond national governments and a broader span of modes of steering than by hierarchical means. Both these aspects are included in our conceptualization of governance. The importance of a wider set of actors was already reflected in the definition of biodiversity mainstreaming that is used in the CBD context (see above). In many economic sectors there are multilevel and/or transnational dimensions of governance that can include steering processes ranging from ‘webs of control’ to ‘webs of dialogue’ with mechanisms such as self-regulation, naming and shaming of corporate practices, professional association dialogues etc. (Braithwaite and Drahos, 2000). Understanding the barriers and levers for biodiversity mainstreaming in economic sectors should therefore benefit from insights from the governance literature.

In this paper we apply the framework by Karlsson-Vinkhuyzen et al. (2017) for identifying barriers and levers for mainstreaming in contexts of *governance* to one agricultural, one agro-forestry and two fisheries cases. Considering the framework as an initial effort to broaden EPI to contexts of governance, as suggested for example by Runhaar et al. (2014), in this paper we do not approach our application of the framework to empirical cases as a rigorous testing, but rather as a modest attempt to test its validity and see if we are on the right track in developing the framework as a tool for answering our research question. The paper proceeds as follows. Section 2 provides the analytical framework applied in our study. Section 3 elaborates on the analytical framework and methodology that we apply. Section 4 provides a brief overview of each case while Section 5 presents the analysis of barriers and levers across the four cases. The paper concludes with a brief discussion on the results and their implications for the performance of, in this case, biodiversity policy integration.

2. Mainstreaming in governance – an analytical framework

There are many partly overlapping concepts in the literature for the efforts of making more integrated and assumingly more effective policy for issues that are cross-boundary in nature such as mainstreaming, (environmental) policy integration, interplay management and policy coherence, see also Visseren-Hamakers (2015). We are in this paper not

going into detail of the possible nuances among how these terms are used among scholars but rather use ‘mainstreaming’ because this is the term used among the policy makers in the issue we are focusing on – biodiversity.¹ The concept of mainstreaming is also more common in the field of global and multilevel governance beyond the EU.² We still take the concept of mainstreaming to encompass the forms of EPI elaborated by Persson & Runhaar (this issue); coordination/harmonisation/prioritisation. But as we are focusing on contexts of *governance* that involves steering efforts both by multiple actors including and beyond national governments and a broad span of modes of steering, we apply a framework developed by some of the authors for this specific purpose (Karlsson-Vinkhuyzen et al., 2017). The framework draws on two sets of literature; the literature on EPI and mainstreaming particularly of environment and biodiversity – for example Tang and Tang (2014); Persson (2009); Nunan et al. (2012); Sietz et al. (2011); Oberthür and Stokke (2011); Jordan and Lenschow (2008) – and the literature on the theory and practice of governance especially in transnational contexts – for example Termeer et al. (2016); Austin and Seitanidi (2012); Glasbergen (2011); Karlsson-Vinkhuyzen and Kok (2011); Andonova (2010); Heifetz et al. (2009); and Uhl-Bien et al. (2007). The context of governance, as defined above, that characterizes many economic sectors has several implications for the forms of mainstreaming that can be attempted and thus where one can find barriers and levers and for which we found the literature on mainstreaming and EPI insufficient. We developed our analytical framework by approaching our networks of governance researchers, using them for consultation and a targeted literature review. This led us to identify three key dimensions and ten sub-dimensions of governance that are important for comprehensively analysing the governance contexts for economic sectors. The first key dimension is *the institutional structure* of a sector that guides the acts and interactions of actors. It includes the sub-dimensions: 1) vertical and horizontal interactions, and 2) policies and norms. The second key dimension is *the motivational structure* that underlies the drivers for behaviour and behavioural change. The associated sub-dimensions are; 1) values and interests, 2) framing and, 3) leadership. The third key dimension is *the distribution of means* that structures interdependencies and the range of alternatives available. Here relevant sub-dimensions are; 1) knowledge, 2) time, and 3) financial resources. Importantly, the sub-dimensions are not mutually exclusive, a feature like leadership is here put in the motivational category but can also be seen as a resource. Several of the sub-dimensions are also relevant when looking at government dominated and/or hierarchical steering (e.g. leadership, financial resources, policies and norms) but require quite different characteristics in governance contexts. Other dimensions, such as vertical and horizontal interactions and framing, become important particularly because of the context of governance with diverse actors engaging in networks.

In the next step, again using expert review and consultation, we identified examples of barriers and levers for mainstreaming for each (sub-)dimension in contexts of governance in order to illustrate the kind of barriers and levers the framework enables us to identify (see Table 1). Clearly more external factors such as broader institutional capacity, public opinion, and socio-economic conditions can be very influential on the potential for mainstreaming to take off and the framework actually ‘internalizes’ some external factors as relevant and indeed possible for governance to influence.

¹ Biodiversity is a cross-boundary issue as the pressures on biodiversity – as explained in the introduction – loss can be found across several economic sectors and thereby policy areas in government.

² Karlsson-Vinkhuyzen and Kok (2011) have in earlier work distinguished between mainstreaming and integration through specifying the former to having a unidirectional aim, one issue being put on the agenda of other policy issues, while integration can be seen as having a more bi- or multi-directional ambition of integrating the priorities of several issue areas in each other. This distinction is, however, not consistent in the literature.

Table 1

Analytical framework for identifying potential barriers and levers for mainstreaming biodiversity in contexts of governance.

Source: Modified from [Karlsson-Vinkhuyzen et al. \(2017\)](#). When illustrations of barriers and levers have been seen as helpful we have used biodiversity examples also when the original papers highlighting these factors have been covering other issues or been merely conceptual.

Governance dimensions and sub-dimensions		Examples of barriers	Examples of levers
Institutional	Horizontal interactions	<ul style="list-style-type: none"> - Resistance towards more horizontal modes of governance and thus more cooperation among diverse types of actors - Low autonomy of actors constraining plurality of initiatives - Low degree of trust among dispersed actors preventing cooperation 	<ul style="list-style-type: none"> - Organizing reflections, creating new contexts and recognizing small wins in mainstreaming efforts - Horizontal structures for coordination - Catalytic alliances between various actors that push for mainstreaming - Active management of trust formation among collaborators
	Vertical interactions	<ul style="list-style-type: none"> - Mismatches in between levels where drivers for problems exist and levels with actors with capacity and legitimacy to create institutions constraining effective policy and implementation 	<p>The presence of enabling conditions for rescaling and scale sensitivity such as:</p> <ul style="list-style-type: none"> - Flexible institutions to create and recreate fit between problem and governance arrangements - Tolerance for redundancy and blurred responsibilities - A vertically integrated commodity chain enabling partnership formation
	Policies and norms	<ul style="list-style-type: none"> - Low compliance with voluntary agreements which are common forms of biodiversity mainstreaming - High density of pre-existing norms constraining developing norms issues, such as biodiversity, which are new for some actors 	<ul style="list-style-type: none"> - Low density of pre-existing norms creating space for new policies and norms - Standards by private or hybrid actors - Strong accountability regimes involving multiple actors
Motivational	Interests	<ul style="list-style-type: none"> - Basic interests (such as livelihoods) are not fulfilled for key actors constraining their interest to consider additional issues 	<ul style="list-style-type: none"> - Actors with linked interests in relation to biodiversity conservation - Combined pressure on companies from campaigning NGOs and outreach from collaborative NGOs
	Values	<ul style="list-style-type: none"> - Narrow utilitarianism and absence of altruism among key actors e.g. constraining willingness to consider transnational impacts 	<ul style="list-style-type: none"> - Presence of inclusive and 'expanded' value spheres among relevant actors e.g. encompassing humanity and the biosphere
	Framing	<ul style="list-style-type: none"> - Controversy from too divergent frames on e.g. on biodiversity friendly farming systems 	<ul style="list-style-type: none"> - A process of frame fusion among actors that need to collaborate on conservation - Plurality of frames can enable co-creation in partnerships e.g. among producers and consumers - Presence of alternative frames and active reframing
	Leadership	<ul style="list-style-type: none"> - Reliance on positional leadership alone constraining the emergence of multiple nodes of leadership among a diversity of actors 	<p>Leaders that can:</p> <ul style="list-style-type: none"> - foster adaptation (innovation and experimentation) - embrace disequilibrium (create a culture of courageous conversations) - generate leadership (mobilize everyone to generate solutions) - provide normative direction - enhance diversity in skills, cultures, passions and interests - provide moral leadership
Means	Knowledge	<ul style="list-style-type: none"> - Lack of knowledge on biodiversity promoting measures - Lack of clear business case (economical evidence) for conservation 	<ul style="list-style-type: none"> - Tools such as Strategic Environmental Assessments - Easy to communicate goals, targets and indicators showing linkages between natural capital and human well-being
	Time	<ul style="list-style-type: none"> - Mismatching cost-benefit timescales among actors e.g. preventing long-term investment in conservation 	<ul style="list-style-type: none"> - Individuals in key positions with long-term commitment to collaboration - Scenario development processes for visualizing long-term dependence on biodiversity - External (public) support for expanding planning time horizon
	Financial resources	<ul style="list-style-type: none"> - Reliance on biodiversity specific public funds alone 	<ul style="list-style-type: none"> - Increased understanding of the socio-economic value of biodiversity - Availability of innovative finance mechanisms

3. Methodology and cases

As a first step to test our analytical framework for identifying barriers and levers for mainstreaming biodiversity we applied it to economic sectors that exert high pressure on biodiversity. We did this through a desk-based comparative study of four cases. Each case constitutes a place-based or transnational/global system of governance of a natural resource in the agriculture, forestry and fisheries sectors.³ The desk research first focused on the academic literature to capture current debates on the cases. This was then complemented with grey literature

and policy documents to fill empirical gaps. While this approach naturally provides constraints for depth and detail, each case was analysed by a scholar well familiar with the case who was thus able to verify the information and analysis from an informed perspective.⁴ The desk research was done in 2013–2014 and updated in 2017 to ensure the empirical material was current. The analytical framework with its ten sub-dimensions was used as a search light for barriers and levers and for categorizing and analysing the data on barriers and levers with iterative discussions among the researchers to ensure coherence in the analysis.

³ The original study also included a case on certified forests which has been published in a very brief form elsewhere, see [Karlsson-Vinkhuyzen et al. \(2017\)](#). While not included here it shares several aspects with the certified fisheries and palm-oil cases and informs our overall conclusions in this paper.

⁴ The desk-based approach was linked to the priorities of the project funder, the Netherlands Environment Assessment Agency PBL, that wanted a relatively rapid pilot study in order to feed into technical reports produced for the CBD Secretariat, see [Kok et al. \(2014\)](#).

Table 2
Overview of included cases and their characteristics.

Case / characteristics	Relevance for biodiversity	Governance level	Governance contexts (actors and modes)	Region(s)	'Degree' of mainstreaming efforts
Certified marine fisheries	High	Global/local	Multi-stakeholder institution, voluntary norms	Global	Moderate
Certified palm oil globally/Indonesia	High (indirect effects)	Global/national	Multi-stakeholder and public institutions, voluntary norms	Global and South East Asia	Moderate
FDI in land in Africa	Moderate/high (uncertain indirect effects)	National/trans-national	Primarily public actors but also state-owned private with civil society and international organizations in the periphery, hierarchy at global national level, voluntary transnational norms	Africa	Absent
Mangrove co-management in the Mekong	High	Regional/national/local	Public, national and regional non-legal policies and co-management at local level based on binding rules	Global coastal/South-East Asia	High

We strived for a comparative case study with high diversity among cases in order to better capture a broad set of barriers and levers and explore if the analytical framework adds value across a span of difficult and less difficult governance contexts for biodiversity mainstreaming. The cases were selected in order to cover a spectrum of the following characteristics:

- Relevance for biodiversity (from having very clear impacts to much more uncertain impacts)
- Governance levels (including both local, national, global levels and mostly a combination)
- Governance context:
 - Type of actors (public actors, private actors and combinations of these)
 - Mode of governance (hierarchical and non-hierarchical)
- Regions (continents and eco-climatic zones)
- Presence of biodiversity mainstreaming efforts (corresponding to expectations of there being 'easy' or 'hard' contexts for mainstreaming)

Table 2 outlines the basic characteristics of the cases along these criteria, and a brief description of each case follows.

3.1. Certified marine fisheries

The marine fisheries sector ranges from small-scale artisanal fisheries to large-scale commercial fishing operations, and from subsistence, coastal communities based fisheries to global commercial fisheries. Overfishing is a major environmental problem in the oceans. In addition to the direct loss of the exploited species, the very act of fishing, particularly with mobile bottom gear, destroys habitat and ultimately results in biodiversity loss. The case is confined to the Marine Stewardship Council's (MSC) certification program which can be seen as an effort to mainstream biodiversity in this sector. The MSC sets general principles relating to the issue of overfishing, the health of the ecosystem, as well as effective management systems that respects local, national, and international laws and standards (Boström and Hallström, 2013). Fisheries that apply these principles should thus conserve biodiversity. The MSC was established in 1997 initiated by WWF and Unilever to manage marine fisheries more sustainably. It has become the world's leading certification and eco-labelling programme for seafood derived from capture fisheries. It has (as of 2016) 286 fisheries certified, 92 undergoing assessment and over 2000 companies having met the MSC Chain of Custody standard for seafood traceability (International Trade Centre, 2013; Marine Stewardship Council, 2013b, 2016). Some 10 percent of the global total wild capture harvest is currently MSC labelled (Marine Stewardship Council, 2012, 2013a, 2016). The MSC works in partnership with a number of organisations, businesses and funders around the world but is formally independent.

3.2. Certified palm oil

Palm oil plantations have significant negative impact on biodiversity as they are located in some of the world's most biodiverse regions (Turner et al., 2008). Palm oil is a crop the production of which is rapidly increasing in the world with 85 percent of the production in Southeast Asia. The case is focused on the efforts to address biodiversity by means of certification of palm oil at the global level through the Roundtable on Sustainable Palm Oil (RSPO) and at the national level by the government of Indonesia (the national standard for Indonesian Sustainable Palm Oil, ISPO). Indonesia is the world's leader in production and plans to double current production. Production is not only geographically concentrated but also organized by a relatively small number of very large plantation groups: around 50 plantation groups account for 75 percent of global palm oil production (Schouten and Glasbergen, 2012). The refining and trading segments of the global

commodity chain are very horizontally integrated with a small number of business groups controlling a significant percentage of the market. The RSPO consists of more than 1300 members coming from nearly 70 countries divided into seven constituencies: palm oil processors and traders, consumer goods manufacturers, retailers, banks and investors, oil palm growers, environmental and nature conservation organizations, and social and development organizations (Hospes, 2011). At critical points for biodiversity the criteria of the RSPO and ISPO strongly differ (Hospes, 2014). For example, one distinctive feature of the RSPO standard is 'high conservation value areas', and another is strong restrictions on the cultivation of palm oil in peat lands both of which are absent in the ISPO.

3.3. Foreign direct investment (FDI) in land

Foreign direct investment (FDI) in land is a phenomenon where governments seek to ensure food security by leasing or buying land for food production in other countries. It is increasing in e.g. South America, Sub-Saharan Africa (SSA) and South-East Asia (Land Matrix, 2013), however our analysis focuses on SSA. The severe food price crises in 2007–2008 led some governments to stimulate, in different ways, investments in land in foreign countries. The parallel global financial crisis also increased the incentives for purchasing land in SSA as this was cheap. Exact data about the frequency and the amount of land involved in the land deals, and the state of biodiversity on these lands before and after the deals is largely missing or incomplete. There is no research on the (potential) impact of FDI in land on biodiversity but direct effects can result from a transition of the land to monoculture and/or intensification of land use for example with the use of more pesticides and fertilizers. This type of agriculture plays, in general, a significant role in biodiversity loss. The type of land that is subject to FDI is in most cases characterised by a low population density. However, the land is not idle, there is some form of land use often by the poor for purposes such as grazing animals and gathering fuel wood or medicinal plants (Cotula et al., 2009; Deininger et al., 2011). The governance context involves a wide variety of investors (Cotula et al., 2009) ranging from central government agencies (rare) and investor countries' state-owned enterprises (SOEs) to Sovereign Wealth Funds (SWFs) (state-owned investment funds). For the governments of the host countries FDI is seen as beneficial for their country, but the self-interest of government representatives, i.e. corruption, could be an additional reason for supporting FDI (Cotula et al., 2009). There is a lively societal and academic debate on FDI in land but it has so far primarily focused on livelihoods and human rights of the farmers involved and not biodiversity even if there are NGOs who take it up.

3.4. Mangroves and water

Mangroves support marine, aquatic and terrestrial biodiversity while local communities use natural resources such as shellfish, crustaceans, fish, firewood, construction materials and medicines. They are cut down at increasing rates for firewood and to free up new land for intensive aquaculture (mainly shrimp farming) that provides high incomes. Mangroves are also often negatively impacted by external pressures such as upstream water use and downstream impacts from saline water intrusion. More than one-third of mangroves have been lost in Asia since the 1980s mainly to aquaculture (38% to shrimp farming and 14% to fish farming), deforestation for firewood (some 25%) and to upstream water diversions (11%) (Millennium Ecosystem Assessment, 2005). Farmers often shift from rice to shrimp production when water shortages lead to salinity increases, making rice production go down (Hoanh et al., 2010). The case here is mangroves in the Mekong Delta, Vietnam, where the majority of the coastal brackish water zone is used for intensive mono-culture shrimp farming. Erosion is a major threat in the limited mangrove belts remaining along the coast line in the Soc Trang province (Schmitt et al., 2013). Mangroves and

coastal zones have been included explicitly as 'environmental hotspots' in the National Biodiversity strategy and Action Plan but there is very limited attention to biodiversity in the 'Basin Development Strategy' that the regional intergovernmental Mekong River Commission has adopted. Some integrated approaches have been developed at the local level that combine various production systems with adequate forest, water and land management and thus provide a certain degree of harmonization of production and biodiversity priorities. The outcome of these approaches partly depends on efforts by individual farmers but needs other governance measures to be scaled up. The first co-management agreement for mangroves, as part of the coastal zone, was set up in the coastal village of Au Tho B (Soc Trang province) in 2009 as part of a six year pilot project supported with German development funding (Schmitt et al., 2013). Here, the local authorities and resource users jointly negotiated rules on the use and protection of mangroves.

4. Barriers and levers for biodiversity mainstreaming across four cases

Across all but one of the cases (FDI in Africa) there is progress in mainstreaming biodiversity in the sectors at least at the level of outputs (certification or management criteria relating to biodiversity), and at the level of outcomes in the form of changed practices of producers and consumers and many other actors 'in between' these in the global value chain. The efforts can be characterized mostly to be limited as they are at the level of harmonization (reducing contradictory incentives) and coordination between biodiversity and ecosystem services and economic priorities with a low degree of implementation. In no case have mainstreaming reached the degree that biodiversity objectives are prioritized above other sector objectives. With regard to final impacts on biodiversity there are considerable uncertainties that only more research can reduce (see below).

The barriers and levers that were identified and that can help explain the progress in mainstreaming in the different cases have been described in a project report (Karlsson-Vinkhuyzen et al., 2014). Here we extract the main and updated results of the cross-case analysis of barriers and levers for biodiversity mainstreaming that seem particularly relevant as lessons for how to expand the insights of environmental policy integration to the governance contexts of economic sectors. The analysis is presented for the three clusters of governance dimensions; institutional, motivational and means.

4.1. Institutional barriers and levers

The global certification schemes show a strong track record of collaboration and serve as horizontal structures for coordination of actors seeking to strengthen the sustainability criteria for production. There are catalytic alliances, such as various NGOs, raising awareness among consumers about the value of certification. This seems to be less the case for palm oil, which is a product not directly sold to consumers but rather an ingredient of a great many different products. An open question is, however, to what degree these catalytic alliances exist, and how strong they are, in the rapidly growing markets in the global South. The global horizontal structures of coordination (MSC and RSPO) have spent a considerable time to build trust among their members. But it is the trust relationship with the consumers that will ultimately determine the future of certification as a mainstreaming strategy and there are some major question marks regarding how this may play out in the future (see below when discussing knowledge).

In the case of palm oil governments could play an important role as model consumers, but they have been reluctant to take action that may be seen as violation of WTO rules. What speaks in favour of mainstreaming in the palm oil sector is that this sector is strongly vertically integrated with production in a few countries and with certain companies as big players laying the ground work for the RSPO. Also in the case of FDI in land the number of actors is small and powerful (state-

owned enterprises, investment funds, governments etc.), but the context is challenged by a high degree of secrecy and risks of corruption and few horizontal interactions among the actors. The FDI case is also one where there is a high density of pre-existing norms surrounding contracts etc. in private international law, norms that are entirely lacking attention for biodiversity or other sustainability aspects. There are many civil society organizations engaging with the negative impacts of FDI on land in Africa but most of these focus on human rights issues rather than biodiversity. Similarly, the FAO has formulated 'Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security' that outline principles and practices that governments can refer to when making laws and administering land, fisheries and forests rights but also here biodiversity is not in focus.⁵

Across all cases it is clear that governments either do or would need to play an important role in mainstreaming because governments have certain mandates and resources that other actors do not. This applies particularly to creating incentivising regulatory and financial frameworks, also in cases of global, multi-level and transnational governance that we primarily deal with here. The setting up of co-management approaches in the mangrove areas of Vietnam is one example of how the governmental actors at local and provincial levels supported a change of the basic rules for companies in a direction that makes their business models more viable.

The global value chains that in some way are part of all cases are global in scope with trade crossing territorial boundaries and driven by international demand. The institutional response in terms of policies and norms has been meagre, however, at this level with considerable reluctance to question the one set of enforceable rules that apply – the WTO rules. Similarly, international rules adopted by non-governmental actors (e.g. private or multistakeholder partnerships) may constrain the actions of parties to FDI contracts and thus the ability of the investors (often government linked financial actors) or the receiving governments to bring in biodiversity concerns in such contracts. At the same time our study highlights several examples where legal framework laws already support the integration of biodiversity concerns in economic sectors. One example is the MSC, which has as condition for accepting certification of specific fisheries (metiers) that there exists a functioning regulatory framework in the area. There is also an abundance of non-legally binding international norms (soft law) adopted either jointly by governments (e.g. the Sustainable Development Goals 14 and 15 on biodiversity) or under the auspices of a UN organization (e.g. the FAO code mentioned above) that could, if adhered to, serve as levers for biodiversity mainstreaming.

4.2. Motivational barriers and levers

When a fishing fleet looks at the harvest potential in a few years time, or when small holder farmers, shrimp farmers in the mangrove belts or fishermen in small and big waters depend on biodiversity, there is a strong potential alignment between their long-term economic and livelihood interests and those of biodiversity. For example, integrated high-diverse mangrove-shrimp production systems were shown to yield higher returns per hectare with lower risks than industrial shrimp farming, because of the additional economic benefits from the mangroves (Vo, 2013). The realisation of this potential alignment can be blocked by ignorance (see below) or short term benefits. Such 'short termism' is a value present also on the consumer side where values in support of sustainability may be subsumed under finding the lowest prices. On the other hand one can look at the widespread appreciation for biodiversity and environmental sustainability more broadly and among the leading actors such as NGOs as having enabled the drive for voluntary certification of products. It is such values that will continue

to be an essential lever for new actors to mainstream biodiversity concerns proactively in the way they produce and consume. For producers in some value chains the attraction towards certification can be further strengthened by the potential premium price, the improved image it gives or more fundamentally for the 'license to produce' that certification may provide in some markets.

In the palm oil case conflicting interests and frames among stakeholders can be a lever for biodiversity if it becomes part of a package deal, in this case certified palm oil. Many of the stakeholders in the global roundtable (RSPO) did not have biodiversity as primary frame. Yet the dialogue process enabled diverse interests to be acceptable when taken together with a certification process that gives added value for all. However, diversity of values regarding what sustainable production looks like can become a barrier for mainstreaming if competing certification schemes lead to a race to the bottom, meaning that they lower the criteria for what counts as sustainable production in order to stay competitive. In the cases we analysed it is not yet clear whether this is happening. The FDI in land case illustrates the potential for biodiversity to fit several frames; such as a frame of local commons remaining in local hands for diverse uses or the frame of intensified agriculture with increased production leading to more welfare that potentially could create opportunities for financing future conservation measures. One challenge here is that practically no actor is speaking out for biodiversity per se and leadership for mainstreaming is thus weak.

In the start-up phase of mainstreaming in governance contexts it takes strong leaders with convening power to bring together unlikely groups of stakeholders and stimulate courageous conversations. The certification cases vividly illustrate the influence that the leadership of NGOs like WWF and companies like Unilever can have. The less visible potential leadership of the researchers who can show the economic value of integrated shrimp farming where mangroves are preserved is no less important as are the examples set by collaborating in co-management structures set up in the mangroves. The rules on the use and protection of mangroves jointly negotiated by local authorities and resource users in the Soc Trang province in Vietnam have been formalised and a mangrove user committee has been setup, as well as farmer cooperatives. These coordination efforts finally led to a co-management agreement being signed between local stakeholders and the local authorities (province, district and municipal across sectors). This generated responsibility and ownership among the parties to implement it illustrating the importance of dispersed non-positional leadership.

4.3. Means as barriers and levers

A major barrier for expanding the certification regimes both to more producers particularly in developing countries, and to more crops, is the time, financial resources and technical knowledge that it takes for small holders to become certified. Lack of resources is also a major barrier for widening the knowledge base needed for trust building and accountability in these regimes (see below). Lack of funding is furthermore a constraint in the case of co-management in the coastal zones of Vietnam where project based funding from a bilateral donor is a short-term and limited solution. It is unclear where resources could come from to implement the region-wide plans related to integrating water resource management and biodiversity.

In every certification case included in our study it is clear that there is a weak knowledge base for evaluating the outcome for biodiversity. While it is possible to establish to a certain degree whether particular fish species subject to certification are reaching healthy population levels, the wider implications for biodiversity in these ecosystems are not known. This weak knowledge base could become a major barrier for continued trust in the labels among consumers and can fuel the mistrust of many NGOs that are negative towards market-based mechanisms. The voluntary certification approach is built on a series of trust based relationships between producers and certifiers, certifiers and consumers

⁵ See <http://www.fao.org/nr/tenure/voluntary-guidelines/en/>.

etc. In other situations valuable knowledge that could support mainstreaming is available but not in the hands of those who need it. The shrimp farming case illustrates that knowledge on win-win options for biodiversity and profitability – that it is more profitable for shrimp farmers to integrate their farm with existing mangrove vegetation (Vo, 2013) – may not be accessible for producers in larger areas.

Various aspects of the temporal dimensions of governance provide barriers for mainstreaming. There is a potential trade-off between fast growth in the area certified using less demanding e.g. biodiversity conservation criteria and slower growth with schemes with more stringent demands that could take more time to implement. It is also a time-consuming affair to further strengthen criteria in certification schemes. For example in the RSPO there is an agreement to revise the standard for sustainable palm oil every five years: the Board of Directors appoints a working group or Taskforce to recommend changes on the basis of on-line and off-line multi-stakeholder consultations. The reviewed standard, consisting of principles and criteria, is submitted for ratification by the General Assembly of the RSPO. In 2013 the first revision of the standard was ratified. The next revision is expected to be ratified in 2018. Furthermore, conflicting time perspectives constrain attention to biodiversity.

Both commercial fishing companies as well as artisanal (small scale) fishermen tend to operate under a dual time-perspective: a rather short-term concern of having a profitable fishing operation on a day to day basis paired with a far more long term outlook in which continuation of the fishing company, or family fishing activities, is of prime importance and hence a keen interest in long term healthy fish stocks.

5. Discussion and conclusion

Despite the mainstreaming efforts in the economic sectors relevant for biodiversity that we analysed in this paper, we are still far from a situation where those types of governance models have mobilized everyone to generate solutions. An optimistic expectation is that when, for example, the ten percent threshold of certified catches in fisheries has been reached, as it had in 2016 (see above), the whole sector will move toward more sustainable practices. This could happen, for example, through new innovations (e.g. sun wing and pulse fisheries) that have been triggered by the certification regime. This would correspond to coordination and even harmonization among key actors. Ensuring an even better outcome of the mainstreaming efforts would require stronger prioritization of biodiversity in the certification criteria. Such work to strengthen the criteria, however, requires patience and long-term commitment, and leaders need to be able to establish serious linkages with the research community in order to do so effectively.

The cases we have analysed are covering multi-level and transnational governance contexts where decision-making can look quite different from the kind of public policy machinery of national (and regional for the EU) bureaucracies that much EPI literature has focused on. The role of governments, while still crucially important particularly for upscaling and enabling mainstreaming efforts initiated by other actors, is accompanied by significant roles by a range of other actors. Furthermore, hierarchical regulation by governments provides a significant barrier in several cases when international or national laws and policies contradict biodiversity concerns. It is the challenge to overcome these formal rules that provide leaders (e.g. policy entrepreneurs) with the ‘space’ for soft governance modes. Indeed, these are then the only measures available. It is mostly in the realm of soft laws and regulations developed by non-governmental actors, sometimes together with governments, that mainstreaming is taking off. It is also soft laws adopted by governments in support of conservation that provide potentially enabling functions for further mainstreaming across economic sectors. Thus in the institutional dimensions of governance, which indeed provides the core characteristics of how we identify a *governance* context, it is not so surprising that we can find

more diverse barriers and levers than if we would draw on EPI literature alone, see Table 3.⁶ Where actions are taken to mainstream biodiversity (often as part of a broader ambition for environmental or sustainability issues) it can be in cooperation among diverse stakeholders that have never formally collaborated before such as in the certification bodies. Such constellations can enter dialogue and build synergies for example between public and private actors and their regulatory norms, between market (consumers) and producers, and between actors and norms at different levels of governance. Our cases show that every step of a ‘policy cycle’ has to emerge through a long process of deliberation and negotiation – and that a careful balancing of competing frames in search for common frames can capture the support of catalytic alliances and the broader public.

It is in such contexts of governance that our case studies represent – with considerable roles for non-governmental actors and/or non-hierarchical modes of steering – that the internal motivational factors emerge as especially important. It is the presence of leaders, and not necessarily positional leaders, with the values and interests that drive them to venture into new territory and innovate policy-making within and among actor types, that could provide seeds for change. This can involve CEOs and heads of NGOs who are brave enough to reach out to each other and build trust for collaborative action, producers who overcome considerable obstacles to change their practices, for example to become certified, and consumers who put the public interest above their private ones in paying premium prices for certified products. However, the presence of relevant values-based leadership in all these three categories is often patchy at best on a global scale. Thus, while a diversity of actors can increase the potential for motivated leaders to emerge and for a different type of horizontal leadership to matter, it may not happen. Diversity of interests and values can lower the common denominator, but also work as powerful starting points for identifying new and converging frames. The role of knowledge emerges as a key resource but its type and role spans from independent research to practical experiences shared among stakeholders involved in mainstreaming efforts. Finally, while the possible sources of funding to build mainstreaming efforts expand where more types of actors are involved it does not necessarily mean that such resources appear.

A number of these ‘additional’ barriers and levers would in the categorization of Persson and Runhaar (this issue) fall into external factors that by implication would be out of reach for mainstreaming efforts. Expanding the analytical lens to a transnational governance context ‘internalizes’ these making them potentially subject to (or in deed driving) mainstreaming efforts. For example, it is the harmonization of biodiversity values in the global value chains with possible similar values among its consumers (individual and collective) that will create the demand for their products. Looking at the cases that use certification as a mainstreaming instrument for biodiversity the rapid growth in certified area (forest and palm oil) and in number of fisheries indicate such harmonization has become essential as a license to produce in some markets. Retailers decline to sell non-certified products. In contrast there are many markets where certified products are marginal if present at all, indicating a lack of interest either by individual consumers and/or the major retailers that could make them accessible. With our analytical framework such lack of public support by consumers becomes an internal motivational factor that could be influenced by, for example, catalytic alliances.

The results are highly relevant for the evaluation of EPI performance; a governance perspective expands the borders of who can initiate, enable and sustain mainstreaming, what scope of regulatory norms they can use and the potentially useful resources for the process.

⁶ This is further illustrated by table 7.2 in Karlsson-Vinkhuyzen et al. (2014, p. 143) that provides examples of levers drawn from EPI literature compared with those found in the analysed cases.

Table 3
Identified barriers and levers for biodiversity mainstreaming in the four cases.

Governance dimensions/cases		Certified marine fisheries	Certified palm oil	FDI in African	Mangrove co-management in Vietnam
Institutional	Horizontal interactions	+ Catalytic alliances supporting certification	+ Trust building in/through the RSPO	- Limited stakeholder engagement beyond host government and investor	Co-management structures between fishermen and local authorities
	Vertical interactions	+ Trust building in/through the MSC	+ Vertically integrated commodity chain	-	+ Co-management structures also involving provincial level support + co-designed norms
Motivational	Policies and norms	+ National or regional regulatory framework for fisheries (+) Global soft law as Aichi targets and SDGs 14 and 15	(+) Global soft law as Aichi targets and SDGs 14 and 15	- international private law (+) int. soft law (FAO guidelines) (+) global soft law as Aichi targets and SDGs 14 and 15	- Regional development plans with strong economic focus
	Interests	+ Dependence on biodiversity - Economic profits and premium price	- Economic profits and premium price	- Economic profits	+ Dependence on biodiversity - Economic profits
	Values	- Short termism + Public appreciation for biodiversity	- Short termism	- Greed yielding corruption	- Short termism
	Framing	Plurality of frames leading to co-creation in partnerships	+ Plurality of frames led to co-creation in partnerships which included biodiversity - Diverse frames of what biodiversity is among competing certification regimes	- No frame including biodiversity as related to FDI	- Active reframing in local co-management efforts
Means	Leadership	+ Strong leadership of some NGOs and companies	+ Strong leadership of some NGOs and companies	- only positional leadership for economic gains	+ dispersed, generative leadership among resource users
	Knowledge, time and financial resources	- Lack of time, financial resources and technical knowledge constraining for small producers to become certified (-) Lack of knowledge on impact of certification on biodiversity	- Lack of time, financial resources and technical knowledge constraining for small producers to become certified (-) Lack of knowledge on impact of certification on biodiversity	- Lack of knowledge on implications of land deals for biodiversity	- Lack of access to information on economic benefits from conservation
	Time	- Time consuming to revise certification criteria (-) More time consuming to expand coverage with more stringent criteria	- Time consuming to revise certification criteria (-) More time consuming to expand coverage with more stringent criteria	-	-
	Financial resources	- Ibid - Lack of resources for research into impact of certification on biodiversity	- Ibid - Lack of resources for research into impact of certification on biodiversity	-	- Time limited project based funding

Note: Examples of barriers [-] and levers [+] in the various cases. Signs within round parenthesis () denote potential barrier or lever that is not yet (much) relevant.

Moreover, quite a few of those levers listed in Table 1 are not appearing in the cases. This indicates that there are more strategies that could support biodiversity mainstreaming in these and similar contexts of governance in economic sectors, which can be identified by looking in the sub-dimensions of governance that the framework we used is composed of. Thus while the analysis with our framework increases in complexity, and the impact of mainstreaming efforts on biodiversity may appear meagre at best, it is possible that these first steps towards mainstreaming provide important seeds of change.

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